

REMARKS**APPLICATION STATUS**

No claims have been canceled or added as a result of this response. Accordingly, claims 1-29 are pending in the present application. No new matter has been introduced by way of the present amendment.

35 USC § 102 REJECTION

Claims 1, 2, 4-9, 15-17, and 19-25 are allowable over US 5,392,850

The rejection of claims 1, 2, 4-9, 15-17, and 19-25 under 35 USC § 102(b), as being anticipated by U.S. Patent No. 5,392,850 to Cornette *et al.* (hereinafter referred to as "the Cornette patent") is respectfully traversed for the reasons set forth hereinafter.

Claim 1 recites:

*A wellbore completion, comprising:
a first gravel pack section and a second gravel pack section, each gravel pack section being capable of production and disposed within a well, the gravel pack sections capable of imposing a predetermined substantially radial flow restriction upon fluid production flowing substantially radially through the gravel pack section;
wherein the first gravel pack section imposes a substantially radial flow restriction that is different from a substantially radial flow restriction imposed by the second gravel pack section. [Emphasis added]*

Thus, the present invention, as claimed in claim 1, requires that each of the gravel pack sections be capable of production and that one of the gravel pack sections creates a radial flow restriction upon fluid production that is different than that of another of the gravel pack sections.

The Cornette patent discloses spaced apart layers of gravel packing 18, 20 within a wellbore space 17 that communicate with correspondingly spaced apart perforations 14, 16. A

gravel layer 22 is disposed between the gravel packing layers 18, 20.¹ In some situations, a zone proximate one of the perforations 14, 16 may tend to produce unwanted fluids into the wellbore space 17, thus becoming nonproductive. The Cornette patent teaches that it is desirable, in such a situation, to decrease the permeability of the gravel packing layer 22 so that the undesirable fluids are inhibited from flowing between the gravel packing layers 18, 20. The Cornette patent teaches that a sub 38, disposed proximate the gravel packing layer 22, is capable of injecting a quantity of permeability reducing material into the gravel packing layer 22 to reduce its permeability to the flow of unwanted fluids between the gravel packing layers 18, 20.² Thus, any production fluid flow through the layer 22 is generally axial or longitudinal.

The Office Action alleges:

One of the sections (22) creates a flow restriction different from the remaining sections (18 and 20). It should be noted that fluid flow out of the ported sub (38) and through section 22 is different from the flow through the other two sections and will be substantially radial flow through at least a portion of the section.³

and

Further, while the examiner acknowledges that the disclosed purpose of changing the permeability of section 22 is to restrict flow into sections 18 and 20, fluid flow out of ported sub 38 and through section 22 will be substantially radial through at least a portion of the section.⁴

Claim 1, however, requires that the gravel pack sections are "capable of production", "capable of imposing a predetermined substantially radial flow restriction upon fluid production", and have radial flow restrictions that are different from one another. Whether the fluid from the ported sub 38 flows radially therefrom is moot, because the claimed limitation is a radial flow restriction upon fluid production, i.e., the production of fluid from the producing

¹ See column 2, lines 51-57, of the Cornette patent.

² See column 3, lines 24-44, of the Cornette patent.

³ See page 2, lines 18-22, of the present Office Action.

formation. Further, the gravel packing layer 22 of the Cornette patent is not capable of production, as required by claim 1. Yet further, the Cornette patent teaches that production fluids are inhibited from flowing between the layers 18 and 20, through the layer 22. Such fluid flow is axial, rather than radial, as required by claim 1.

Claim 1 is anticipated by the Cornette patent, "[o]nly if each and every element as set forth in the claim is found, either expressly or inherently described" in a single prior art reference."⁵ Further, "[t]he identical invention must be shown in as complete detail as is contained in the...claim."⁶ The Cornette patent, however, falls short of these standards.

Further, the Cornette patent fails to render the present invention, as set forth in claim 1, obvious. To establish a *prima facie* case of obviousness, three basic criteria must be met⁷:

- (1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, rather than merely in Applicants' disclosure, to modify the reference or to combine reference teachings;
- (2) There must be a reasonable expectation for success found in the prior art, rather than in Applicants' disclosure; and
- (3) The prior art references must teach or suggest all the claim limitations.

The Cornette patent is silent with regard to a need or to even the possible desirability of having one gravel pack section capable of production that creates a radial flow restriction that is different than that of another gravel pack section that is capable of production. Thus, the Cornette patent fails to provide any suggestion or motivation for one skilled in the art to modify the Cornette apparatus to include such gravel pack sections as required by claim 1. Since the

⁴ See page 8, lines 20-22, of the present Office Action.

⁵ See *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

⁶ See *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

⁷ See MPEP 2143 and *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Cornette patent is silent with regard to such gravel pack sections, it cannot provide any reasonable expectation for success and it cannot teach or suggest all of the limitations of claim 1. Accordingly, the Cornette patent fails to render the present invention, as set forth in claim 1, obvious.

Claims 2 and 4-10 depend from claim 1. Accordingly, the remarks provided above in regard to claim 1 apply equally to claims 2 and 4-10.

Claim 15, as amended, recites:

*A wellbore completion, comprising:
a first gravel pack section and a second gravel pack section, each gravel pack section being capable of production and disposed within a well, the first gravel pack section having a different gravel density than the second gravel pack section; and
wherein at the first gravel pack section creates a substantially radial flow restriction upon fluid production that is different from the substantially radial flow restriction upon fluid production of the second gravel pack section.
[Emphasis added]*

Thus, claim 15 requires that each of the gravel pack sections be capable of production and create a substantially radial flow restriction upon fluid production that is different from one another. Claim 15, as well as claims 16 and 17 that depend therefrom, are therefore allowable over the Cornette patent for at least the same reasons discussed above concerning claim 1.

Claim 19, as amended, recites a method for controlling production drainage rates including "placing a gravel pack within a well, the gravel pack comprising a "first longitudinal gravel pack section and a second longitudinal gravel pack section, each of the gravel pack sections being capable of production and being capable of imposing different flow restrictions upon fluid production flowing substantially radially through the gravel pack sections." Claim 19 is therefore allowable over the Cornette patent for at least the reasons set forth with regard to claim 1 above.

Claims 20-22 depend from claim 19. Accordingly, the remarks provided above in regard to claim 19 apply equally to claims 20-22.

Claim 23, as amended, requires:

A method for restricting production drainage rates within a wellbore completion, comprising:

placing a gravel pack within a wellbore, the gravel pack comprising a first gravel pack section and a second gravel pack section, each of the gravel pack sections being capable of production and having different gravel densities; and

varying a substantially radial flow restriction upon fluid production

along the wellbore length within a generally horizontal well.

varying a substantially radial flow restriction upon fluid production

along the wellbore length within a generally horizontal well.

The Office Action indicates that "gravel layer 22 has a reduced permeability compared to layers 18 and 20 thus the gravel pack varies in flow restriction." As discussed above concerning claim 1, the layer 22 is not capable of production and any fluid flowing through the layer 22 is generally axial, rather than radial, as required by claim 23. Accordingly, the present invention, as set forth in claim 23, is allowable over the Cornette patent.

Claim 24 depends from claim 23. Accordingly, the remarks provided above concerning claim 23 apply equally to claim 24.

Claim 25, as amended, recites, among other things, "placing a gravel pack within the sand screen/wellbore annulus, wherein the gravel pack comprises a first gravel pack section and a second gravel pack section being capable of production and being capable of imposing different flow restrictions upon production fluid flowing radially through the gravel pack sections." As discussed above concerning claim 1, the Cornette patent neither discloses nor suggests such a method. The Office Action indicates that the "screens impose a predetermined flow restriction on the production fluid." Thus, the Office is stating on the record that the screens impose a single predetermined flow restriction on the production fluid. Claim 25, however, requires "imposing different flow restrictions."

Further, the Office Action alleges that "the operator would know the flow restriction through a wellbore screen prior to insertion into the wellbore thus would use a screen that had a flow restriction that was within the range desired for the wellbore."⁸ Whether an operator would have known the type of screen to use is irrelevant. Claim 25 requires "imposing different flow restrictions upon production fluid flowing radially through the gravel pack sections" and the Cornette patent fails to expressly or inherently disclose this limitation. Accordingly, the present invention, as set forth in claim 25, is allowable over the Cornette patent.

Therefore, it is respectfully requested that the rejection of claims 1, 2, 4-9, 15-17, and 19-25 under 35 USC § 102(b), as being anticipated by the Cornette patent, be reconsidered and withdrawn.

35 USC § 103 REJECTION

Claims 3, 10-14, 18, and 26-29 are allowable over US 5,392,850 in view of US2002/0157837.

The rejection of claims 3, 10-14, 18, and 26-29 under 35 USC § 103(a) as being unpatentable over the Cornette patent in view of U.S. Patent Application Publication 2002/0157837 to Bode *et al.* (hereinafter referred to as "the Bode application") is respectfully traversed for the reasons set forth hereinafter.

The Office Action alleges that the Cornette patent discloses all of the limitations of claim 3 except for the gravel pack section imposing a greater pressure drop at the heel of a horizontal well. Applicant respectfully traverses this allegation as being contrary to fact for at least the reasons set forth above concerning the §102(b) rejection of claim 1, from which claim 3 depends, over the Cornette patent. Further, the Office Action alleges that the Cornette patent

⁸ See page 5, lines 4-6, of the present Office Action.

discloses all of the limitations of claim 18 except for the system being located in a horizontal wellbore. Applicant also respectfully traverses this allegation as being contrary to fact for at least the reasons set forth above concerning the §102(b) rejection of claim 15, from which claim 18 depends, over the Cornette patent. As neither the Cornette patent nor the Bode application, either singly or in combination, discloses or suggests all of the limitations of claims 3 and 18, these claims are allowable over the Cornette patent in view of the Bode application.

Claim 10 requires, among other things:

a production tubular having an interior, the production tubular comprising screen sections capable of communicating fluid from the reservoir to the interior of the production tubular, wherein the restriction of at least one screen section is different from the restriction of at least one other screen section. (Emphasis added)

The indication on the record by the Office that the Cornette patent fails to disclose the flow restriction through one of the screens being different from that of the other⁹ is acknowledged with appreciation. Further, the layer 22 of the Cornette patent is not capable of communicating fluid from a reservoir to an interior of a production tubular, as required by claim 10. The Office Action alleges that the Bode application "teaches a system with multiple flow restrictors whose restriction therethrough be individually controlled"¹⁰ and that it would have been obvious to one of ordinary skill "to have formed one of the screens of Cornette *et al.* so that its flow restriction was different from the other as taught by Bode."¹¹ Applicant maintains that the present invention, as set forth in claim 10, is allowable over the Cornette patent in view of the Bode application for the reasons set forth below.

The Bode application discloses:

⁹ See page 6, lines 21-22, of the present Office Action.

¹⁰ See page 6, lines 23-24, of the present Office Action.

¹¹ See page 6, lines 24-27, of the present Office Action.

The flow control apparatus includes a tubular member 72 having apertures 74 formed therein for flow of fluid therethrough between the outside of the tubular member 72 and the inside or the inner diameter of the tubular member 72. The apertures 74 may be any shape, such as in the shape of a slot or a round hole. A slidable sleeve 76 is disposed radially outward of the tubular member 72 and is selectively movable to cover or to uncover the apertures 74 of the tubular member 72. Alternatively, the slidable sleeve 76 may itself have apertures which align or misalign with the apertures 74 of the tubular member 72 to control flow of fluids therethrough. A screen 78 may be disposed radially outward of the sleeve 76 to block the flow of unwanted material into the apertures 74 of the tubular member 72.¹²

Thus, it is not the screen 78 that is used to control the flow. Rather, the tubular member 72 and the slidable sleeve 76 are used to control the flow. Thus, the Bode application fails to disclose or suggest that "the restriction of at least one screen section varies from the restriction of at least one other screen section", as required by claim 10. As the Office has indicated on the record that the Cornette patent fails to disclose this limitation, and as the Bode application also fails to disclose this limitation, the cited references fail to teach or suggest all of the claim limitations. Thus, the Office has failed to establish a *prima facie* case of obviousness with regard to claim 10. "When the references cited by the examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and will be overturned."¹³

As discussed above, the Office Action alleges that "(i)t would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have formed one of the screens of Cornette *et al.* so that its flow restriction was different from the other as taught by Bode in order to have reduced the effect of coning in the well."¹⁴ Neither the Cornette patent nor the Bode application provide motivation for one of ordinary skill to modify one of the screens disclosed in the Cornette patent so that it has a different flow restriction from another

¹² See paragraph [0042] and FIGS. 4 and 5 of the Bode application.

¹³ See *In re Brower*, 37 U.S.P.Q.2d (BNA) 1663, 1666 (Fed. Cir. 1995); *In re Ochiai*, 37 U.S.P.Q.2d (BNA) 1127, 1131 (Fed. Cir. 1995).

¹⁴ See page 6, lines 24-27, of the present Office Action.

screen. The Bode application teaches that the tubular member 72 and the slidable sleeve 76 are used to control the flow, but makes no suggestion that it would be desirable, or even possible, to modify one of the screens 78 such that it has a different flow restriction from one or more of the other screens 78. Even if one of the screens of the Cornette patent could be so modified, which Applicant disputes, "(t)he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification."¹⁵ The Office Action is silent as to the motivation for one of ordinary skill to so modify the Cornette patent in view of the Bode application. "When the incentive to combine the teachings of the references is not readily apparent, it is the duty of the examiner to explain why combination of the reference teachings is proper."¹⁶

Thus, for at least these reasons, the present invention, as set forth in claim 10, is allowable over the Cornette patent in view of the Bode application. Claims 11-14 depend from claim 10. Accordingly, the remarks provided above concerning claim 10 apply equally to claims 11-14.

Claim 26 recites a method for completing a wellbore, comprising:

*developing a simulation completion model for the well that provides a desired flow restriction per well length to provide substantially equal drainage rates within the well productive zone length; and
providing a completion system comprising a sand screen and a gravel pack, the system having generally the desired flow restriction per well length as determined by the simulation completion model.*

The indication on the record by the Office that the Cornette patent fails to disclose "developing a simulation model for designing the (claimed) system so that the system creates the

¹⁵ See *In re Gordon*, 221 U.S.P.Q. (BNA) 1125, 1127 (Fed. Cir. 1984); *In re Brouwer*, 37 U.S.P.Q.2d (BNA) 1663, 1666 (Fed. Cir. 1995); *In re Ochiai*, 37 U.S.P.Q.2d (BNA) 1127, 1131 (Fed. Cir. 1995).

¹⁶ See *Ex parte Skinner*, 2 U.S.P.Q.2d (BNA) 1788, 1790 (Bd. Pat. App. & Int. 1987).

desired flow restriction to provide substantially equal drainage along the length of the well"¹⁷ is noted with appreciation. The Office Action alleges that it would have been obvious to one of ordinary skill "to have developed a simulation model to design the above system in order to have ensured that the designed system would provided the desired affects prior to testing it in a wellbore thus reducing the cost of operation."¹⁸ The Office, however, provides no evidence that developing such a simulation model would be obvious to one of ordinary skill. "[T]he mere fact that a device or process utilizes a known scientific principle does not alone make that device or process obvious."¹⁹ Suggestion or motivation to combine the teachings of two or more references cannot be supplied through abstraction but must be grounded in practical considerations flowing from "positive, concrete evidence of record which justifies a combination of primary and secondary references."²⁰ A simple assertion that such a combination would be obvious to one of ordinary skill in the art cannot substitute for the type of evidence required by *Regal*.²¹

Further, the Office Action alleges that it would have been obvious to one of ordinary skill "to have designed the system to provide substantially equal drainage along the length of the well in order to have prevented coning which is known in the art to be an undesirable occurrence as taught in paragraph 0008 of Bode *et al.*" Whether or not the Bode patent teaches that coning is undesirable, the cited references must disclose or suggest all of the claim limitations.²² Neither

¹⁷ See page 7, lines 20-22, of the present Office Action.

¹⁸ See page 7, lines 23-26, of the present Office Action.

¹⁹ See *In re Brouwer*, 37 U.S.P.Q.2d (BNA) 1663, 1666 (Fed. Cir. 1995), quoting *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 5 U.S.P.Q.2d (BNA) 1434, 1440 (Fed. Cir. 1988).

²⁰ See *In re Regal*, 188 U.S.P.Q. (BNA) 136, 139 (C.C.P.A. 1975) (n. 6).

²¹ See *See Fine*, 5 U.S.P.Q.2d (BNA) at 1599-1600.

²² See MPEP 2143 and *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

the Cornette patent nor the Bode patent, either singly or in combination, discloses or suggests the method set forth in claim 26.

Claims 27-29 depend from claim 26. Accordingly, the remarks provided above concerning claim 26 apply equally to claims 27-29.

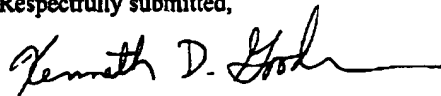
Claim 27 requires a completion system comprising a sand screen and a gravel pack of varying densities along the wellbore length. As discussed above, neither the Cornette patent nor the Bode application, either taken singly or in combination, discloses or suggests such a completion system. Accordingly, claim 27 is allowable over the Cornette patent in view of the Bode application.

Therefore, it is respectfully requested that the rejection of claims 3, 10-14, 18, and 26-29 under 35 USC § 103(a), as being unpatentable over the Cornette patent in view of the Bode application, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited. The Examiner is invited to contact Daren C. Davis at (817) 578-8616 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



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July 10, 2003

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